Exhibit 899-4

Docket No. : 809186

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Cai
Application No.: 13/160,658 Confirmation No.: 3811
Filed: 6/15/2011 Examiner: Hua, Quan
For: INTERFACE BETWEEN RESTFUL WEB SERVICES AND PACKET-SWITCHED NETWORKS FOR TEXT MESSAGING

Mail Stop AMENDMENT
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO OFFICE ACTION

Introductory Comments

In response to the Office action dated January 11, 2013, the Applicants answer as follows.

Amendments to the Claims

1. (Currently Amended) A system comprising:

an interface operable to receive a RESTful send operation for sending a Mobile Terminated (MT) text message from a web application; and

a controller operable to convert the RESTful send operation for the MT text message to a send request that is based on a signaling protocol used in a packet-switched network, wherein the controller is operable to convert the RESTful send operation based on a table that maps the RESTful send operation to a method of the signaling protocol used in the packet-switched network, and map fields from the RESTful send operation to fields in the signaling protocol used in the packet-switched network;

the interface is further operable to transmit the send request for the MT text message to the packet-switched network for delivery of the MT text message to a recipient.

2. (Original) The system of claim 1 wherein:

the signaling protocol used in the packet-switched network comprises Session Initiation Protocol (SIP).

3. (Original) The system of claim 1 wherein:

the signaling protocol used in the packet-switched network comprises Short Message Peer-to-Peer (SMPP) protocol.

4. (Original) The system of claim 1 wherein:

the signaling protocol used in the packet-switched network comprises Mobile Application Part (MAP) protocol.

5. (Original) The system of claim 1 wherein the MT text message comprises a Short Messaging Service (SMS) message.

6. (Original) The system of claim 1 wherein the MT text message comprises a Multimedia Messaging Service (MMS) message.

7. (Original) The system of claim 1 wherein:

the interface is further operable to receive a status message from the packet-switched network indicating a delivery status for at least one of the send request and the MT text message;

the controller is further operable to convert the status message from the signaling protocol used in the packet-switched network to a RESTful status operation; and

the interface is further operable to transmit the RESTful status operation to the web application.

8. (Currently Amended) The system of claim 1 wherein:

the interface is further operable to receive a send request for a Mobile Originated (MO) text message from the packet-switched network, wherein the send ~~message~~ request for the MO text message is based on the signaling protocol used in the packet-switched network;

the controller is further operable to convert the send request for the MO text message to a RESTful receive operation for receiving the MO text message in the web application; and

the interface is further operable to transmit the RESTful receive operation for the MO text message to the web application for delivery of the MO text message to a user of the web application.

9. (Original) The system of claim 8 wherein:

the interface is further operable to receive a RESTful status operation from the web application indicating a delivery status for the MO text message;

the controller is further operable to convert the RESTful status operation to a status message that is based on the signaling protocol used in the packet-switched network; and

the interface is further operable to transmit the status message to the packet-switched network.

10. (Currently Amended) A method comprising:

receiving a RESTful send operation for sending a Mobile Terminated (MT) text message from a web application;

converting the RESTful send operation for the MT text message to a send request that is based on a signaling protocol used in a packet-switched network; and

transmitting the send request for the MT text message to the packet-switched network for delivery of the MT text message to a recipient;

wherein converting the RESTful send operation comprises converting the RESTful send operation based on a table that maps the RESTful send operation to a method of the signaling protocol used in the packet-switched network, and map fields from the RESTful send operation to fields in the signaling protocol used in the packet-switched network.

11. (Original) The method of claim 10 wherein:

the signaling protocol used in the packet-switched network comprises Session Initiation Protocol (SIP).

12. (Original) The method of claim 10 wherein:

the signaling protocol used in the packet-switched network comprises Short Message Peer-to-Peer (SMPP) protocol.

13. (Original) The method of claim 10 wherein:

the signaling protocol used in the packet-switched network comprises Mobile Application Part (MAP) protocol.

14. (Original) The method of claim 10 wherein the MT text message comprises a Short Messaging Service (SMS) message.

15. (Original) The method of claim 10 wherein the MT text message comprises a Multimedia Messaging Service (MMS) message.

16. (Original) The method of claim 10 further comprising:

receiving a status message from the packet-switched network indicating a delivery status for at least one of the send request and the MT text message;

converting the status message from the signaling protocol used in the packet-switched network to a RESTful status operation; and

transmitting the RESTful status operation to the web application.

17. (Currently Amended) The method of claim 10 further comprising:

receiving a send request for a Mobile Originated (MO) text message from the packet-switched network, wherein the send ~~message~~ request for the MO text message is based on the signaling protocol used in the packet-switched network;

converting the send request for the MO text message to a RESTful receive operation for receiving the MO text message in the web application; and

transmitting the RESTful receive operation for the MO text message to the web application for delivery of the MO text message to a user of the web application.

18. (Original) The method of claim 17 further comprising:

receiving a RESTful status operation from the web application indicating a delivery status for the MO text message;

converting the RESTful status operation to a status message that is based on the signaling protocol used in the packet-switched network; and

transmitting the status message to the packet-switched network.

19. (Currently Amended) A system comprising:

an Application Programming Interface (API) for a web application used in text messaging;

the API including a controller operable to receive a RESTful send operation for sending a Mobile Terminated (MT) text message from a web application, to convert the RESTful send operation for the MT text message to a send request that is based on a signaling protocol used in a packet-switched network, and to transmit the send request for the MT text message to the packet-switched network for delivery of the MT text message to a recipient;

wherein the controller of the API is further operable to convert the RESTful send operation based on a table that maps the RESTful send operation to a method of the signaling protocol used in the packet-switched network, and map fields from the RESTful send operation to fields in the signaling protocol used in the packet-switched network.

20. (Currently Amended) The system of claim 19 wherein:

the controller of the API is further operable to receive a send request for a Mobile Originated (MO) text message from the packet-switched network, wherein the send request for the MO text message is based on the signaling protocol used in the packet-switched network, to convert the send request for the MO text message to a RESTful receive operation for receiving the MO text message in the web application, and to transmit the RESTful receive operation for the MO text message to the web application for delivery of the MO text message to a user of the web application.

Remarks

Claims 1-20 are pending, and claims 1-20 stand rejected. The Applicants have amended claims 1, 8, 10, 17, and 19-20 in this Response. The Applicants respectfully respond to the rejections set forth by the Examiner.

Claim Objections

The Examiner objected to the term "RESTful" in claims 1, 7-10, and 16-20. RESTful is a known term in the art of web services. RESTful is based on the Representational State Transfer (REST) architecture, but the Applicants do not think it is necessary to somehow spell out RESTful, as it is known in the art. Therefore, the Applicants ask the Examiner to remove this rejection.

The Examiner also objected to claims 8 and 17 for using the term "send message". The Applicants amended claims 8 and 17 to change "send message" to "send request". We thank the Examiner for noticing this error.

35 USC § 101 Rejection

The Examiner rejected claims 1-9 and 19-20 under 35 USC § 101 as being directed to non-statutory subject matter. 35 USC § 101 states that "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof may obtain a patent therefor, subject to the conditions and requirements of this title". Claim 1 recites a "controller", which is considered a machine under 35 USC § 101. A controller comprises a tangible piece of equipment or hardware. As stated in the specification, a controller is a dedicated hardware element. The controller may be hardware capable of executing software, or may be digital signal processor (DSP) hardware, a network processor, application specific integrated circuit (ASIC) or other circuitry, a field programmable gate array (FPGA), etc. Thus, it is clear that the controller in claim 1 is hardware and is indeed a machine under § 101.

In the rejection, the Examiner seems to have misconstrued the language in the specification. The specification states that "[a]ny of the various elements shown in the figures or described herein may be implemented as hardware, software, firmware, or some combination of

these". However, the specification also states that "[d]edicated hardware elements may be referred to as …'controllers'". And, the "explicit use of the term …"controller" should not be construed to refer exclusively to hardware capable of executing software, and may implicitly include, without limitation, digital signal processor (DSP) hardware, a network processor, application specific integrated circuit (ASIC) or other circuitry, field programmable gate array (FPGA), read only memory (ROM) for storing software, random access memory (RAM), non volatile storage, logic, or some other physical hardware component or module". This statement means that the term "controller" (i.e., hardware) does not merely refer to a processor that executes software, but may refer to other types of physical hardware, such as an FPGA. The Applicants believe that this paragraph in the specification does not help the Examiner's argument. This paragraph of the specification clearly states that a controller is a hardware component. Thus, when claim 1 recites a "controller", claim 1 is referring to a machine under § 101. Because a controller is a hardware element, claims 1-9 are proper under § 101.

The Applicants also amended claim 1 to include a "controller". Therefore, claims 19-20 are also proper under § 101.

35 USC § 103 Rejection

The Examiner rejected claims 1-3, 5-12, and 14-20 under 35 USC § 103(a) as being obvious in view of WO Patent Application 2009/133544 (Geen) and U.S. Patent Application Publication 2012/0023175 (DeLuca). The Applicants will address this rejection by looking at claim 1.

Claim 1 as amended recites a system comprising an interface operable to receive a RESTful send operation for sending a Mobile Terminated (MT) text message from a web application. The system further includes a controller operable to convert the RESTful send operation for the MT text message to a send request that is based on a signaling protocol used in a packet-switched network. The controller converts the RESTful send operation based on a table that maps the RESTful send operation to a method of the signaling protocol used in the packet-switched network, and map fields from the RESTful send operation to fields in the signaling protocol used in the packet-switched network. The interface is further operable to transmit the send request for the MT text message to the packet-switched network for delivery of the MT text message to a recipient.

The controller in claim 1 is able to convert a RESTful send operation for a text message to a send request that is based on a signaling protocol used in a packet-switched network using a mapping table. The mapping table maps the RESTful send operation to a method of the signaling protocol used in the packet-switched network. The mapping table also map fields from the RESTful send operation to fields in the signaling protocol used in the packet-switched network. For example, Tables 1-2 on pages 8 and 10 of the specification illustrates mapping tables for converting a RESTful text message to a text message in a signaling protocol of the packet-switched network.

The Applicants submit that the cited references fail to teach the following limitations of claim 1:

> *the controller is operable to convert the RESTful send operation based on a table that maps the RESTful send operation to a method of the signaling protocol used in the packet-switched network, and map fields from the RESTful send operation to fields in the signaling protocol used in the packet-switched network;*

The controller of claim 1 stores a mapping table that maps a RESTful send operation to a method of the signaling protocol used in the packet-switched network. The mapping table also maps fields from the RESTful send operation to fields in the signaling protocol used in the packet-switched network. Thus, the controller is able to convert the RESTful send operation to send request of the signaling protocol used in the packet-switched network using the mapping table.

The primary reference cited by the Examiner is Geen. Geen describes a messaging server that interfaces an end user with different backend servers (e.g., SMS, MMS, email, etc.) through a common user interface. See FIG. 2. To interface the end user with backend servers, the messaging server (Comprehensive Messaging Server (CMS)) in Geen is able to convert between protocols used by the backend servers, and an application for the end user. See pages 8-9, lines 21-2. For example, FIG. 8 in Geen shows the CMS connecting to an SMSC over an SMPP interface, to an MMSC over an MM7 interface, etc. However, Geen does not describe how the CMS converts between the backend server protocols and an application for the end user. More particularly, Geen fails to describe any type of mapping from a RESTful send operation to a method of the signaling protocol used in a packet-switched network. Geen also fails to describe any type of mapping of fields from a RESTful send operation to fields in the signaling protocol used in the packet-switched network. Therefore, Geen cannot teach the limitations of claim 1

quoted above.

The secondary reference cited by the Examiner is DeLuca. DeLuca discusses a system that automatically updates the status of a user in an Instant Messaging (IM) chat window based on text during a conversation. However, DeLuca does not describe how to convert RESTful send operations for a text message to send requests in a signaling protocol used in a packet-switched network. More particularly, DeLuca fails to describe any type of mapping from a RESTful send operation to a method of the signaling protocol used in a packet-switched network. DeLuca also fails to describe any type of mapping of fields from a RESTful send operation to fields in the signaling protocol used in the packet-switched network. Therefore, DeLuca cannot teach the limitations of claim 1 quoted above.

Because neither of the references teaches a controller that uses a mapping table as recited in claim 1 to convert RESTful send operations for a text message to send requests in a signaling protocol used in a packet-switched network, the combination of references fails to teach the limitations of claim 1 quoted above.

Based on the above remarks, the Applicants submit that claim 1 is non-obvious over the cited references. Independent claims 10 and 19 include similar limitations as claim 1, and are non-obvious for similar reasons. The dependent claims are non-obvious at least for being dependent on their respective base claims.

Conclusion

The Applicants submit that claims 1-20 are novel and non-obvious over the cited art. The Applicants thus respectfully ask the Examiner to allow claims 1-20.

Respectfully submitted,

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SIGNATURE OF PRACTITIONER

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